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SELECTIVE ADDRESS TABLE AGING IN A NETWORK SWITCH BASED ON APPLICATION STATE DETERMINED FROM A RECEIVED DATA PACKET

ABSTRACT OF THE DISCLOSURE

A network switch, configured for performing layer 2 and layer 3 switching in an Ethernet (IEEE 802.3) network without blocking of incoming data packets, includes a network switch port having a packet classifier module configured for evaluating an incoming data packet on an instantaneous basis. The packet classifier module performs simultaneous comparisons between the

5   incoming data stream of the data packet and multiple templates configured for identifying respective data protocols. Each template is composed of a plurality of min terms, wherein each min term specifies a prescribed comparison operation within a selected data byte of the incoming data packet. Hence, the packet classifier module is able to monitor data flows between two network nodes interacting according to a prescribed network application. The packet classifier module determines

10   the application state for a prescribed network application from a received layer 2 data packet, enabling switching logic within the network switch to utilize application-specific aging intervals for respective network applications such as HTTP, SNMP, ftp, Telnet, etc. in order to delete aged address entries from a network switch address table based on the supported network application. Determination of the application state from the received layer 2 data packet also enables the network switch to detect

15   the end of a data flow for deletion of the corresponding address entry from the network switch address table.